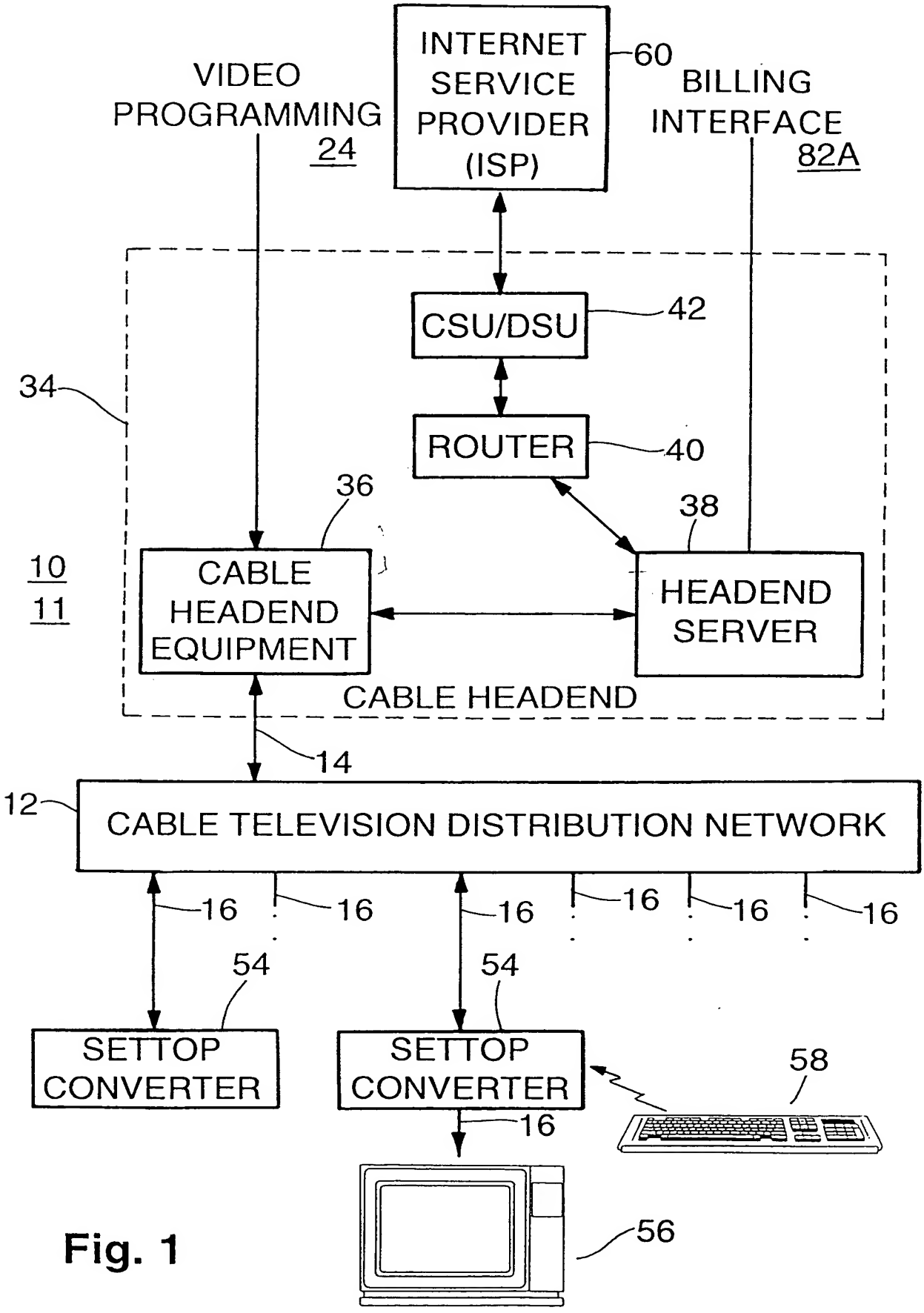

INTERNET SERVICE PROVIDER (ISP)
60
VIDEO PROGRAMMING
24
BILLING INTERFACE
82A
CSU/DSU
42
34
ROUTER
40
36
38
10
11
CABLE HEADEND EQUIPMENT
HEADEND SERVER
CABLE HEADEND
14
12
CABLE TELEVISION DISTRIBUTION NETWORK
16
16
16
16
16
16
54
54
SETTOP CONVERTER
SETTOP CONVERTER
58
16
56

Fig. 1

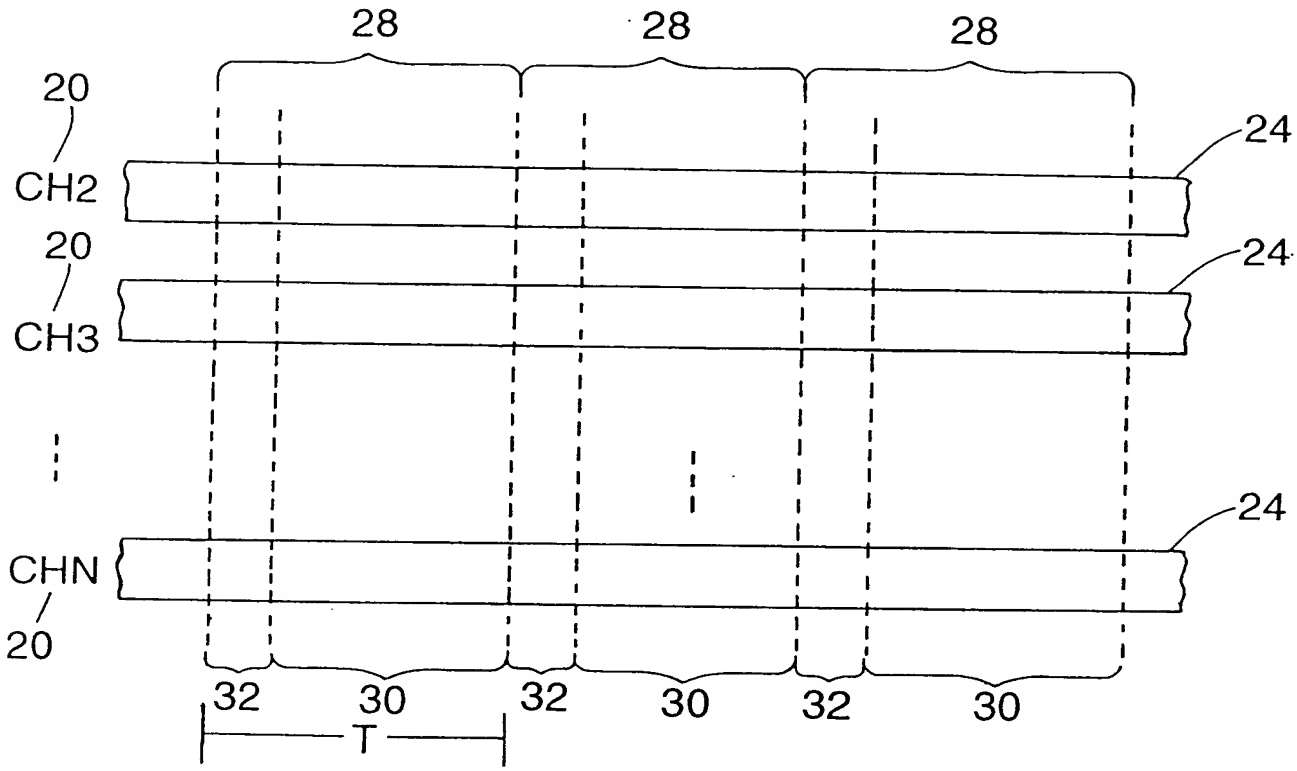

28
28
28
20
CH2
24
20
CH3
24
CHN
20
24
32
30
32
30
32
30
T

Fig. 2A

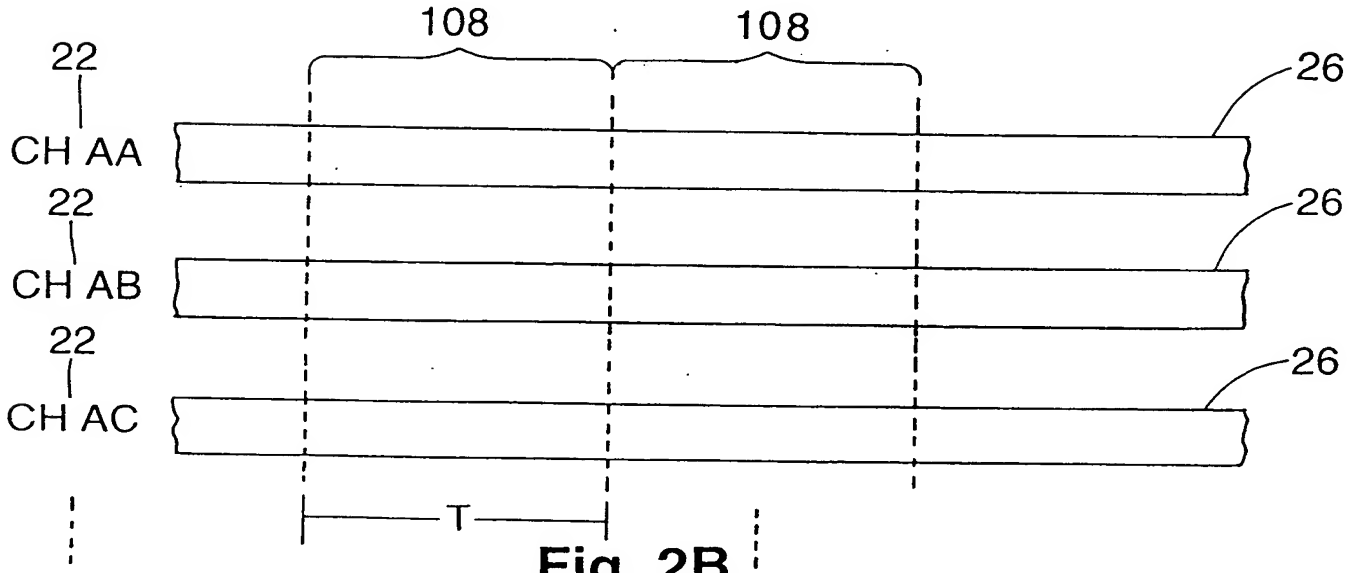

108
108
22
CH AA
26
22
CH AB
26
22
CH AC
26
T

Fig. 2B

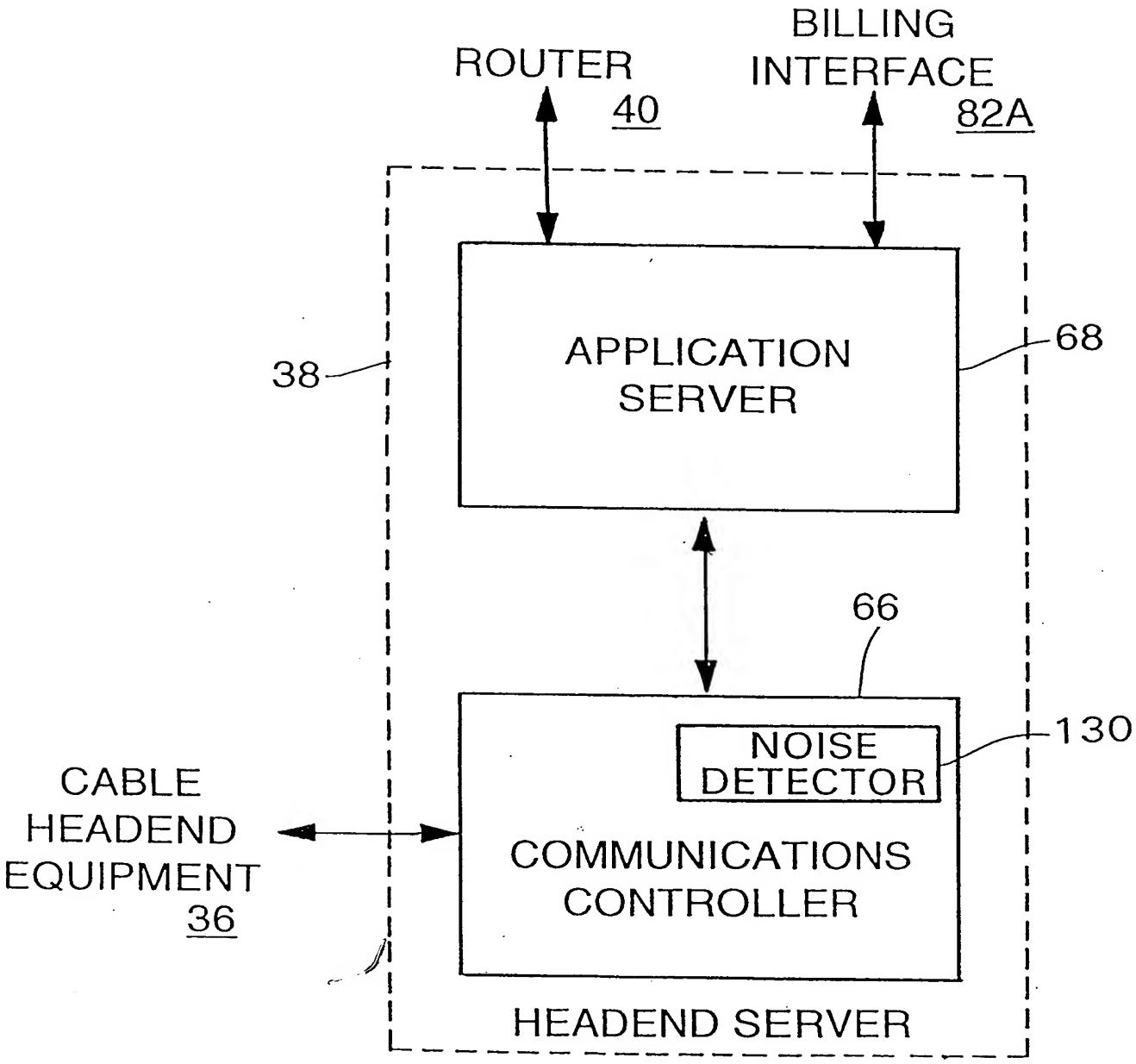

ROUTER
40
BILLING
INTERFACE
82A
38
APPLICATION
SERVER
68
66
NOISE
DETECTOR
130
CABLE
HEADEND
EQUIPMENT
36
COMMUNICATIONS
CONTROLLER
HEADEND SERVER

Fig. 3

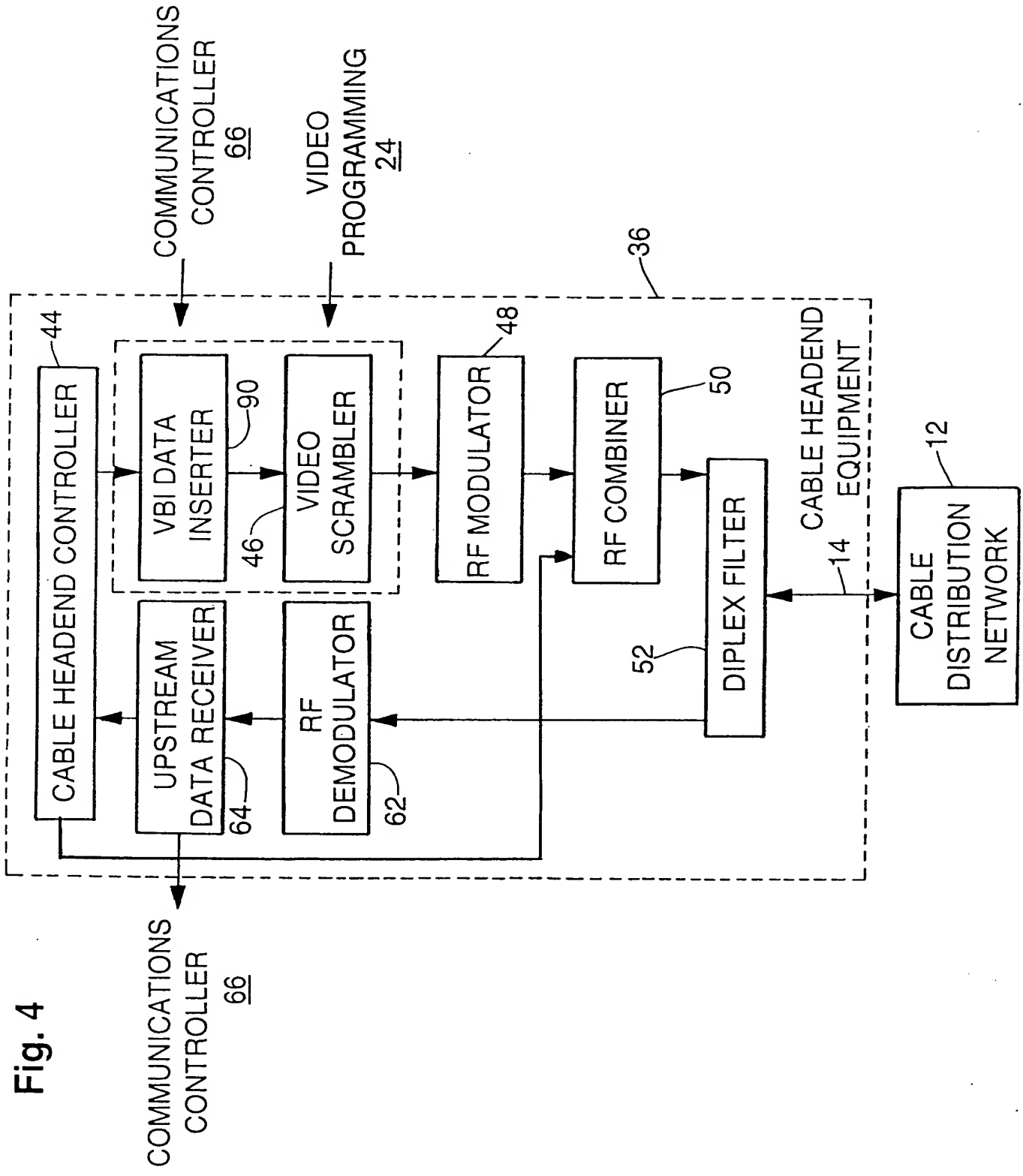

COMMUNICATIONS CONTROLLER 66
VIDEO PROGRAMMING 24
36
CABLE HEADEND CONTROLLER
44
VBI DATA INSERTER
90
VIDEO SCRAMBLER
46
RF MODULATOR
48
RF COMBINER
50
DIPLEX FILTER
52
CABLE HEADEND EQUIPMENT
14
CABLE DISTRIBUTION NETWORK
12
UPSTREAM DATA RECEIVER
64
RF DEMODULATOR
62
COMMUNICATIONS CONTROLLER 66

Fig. 4

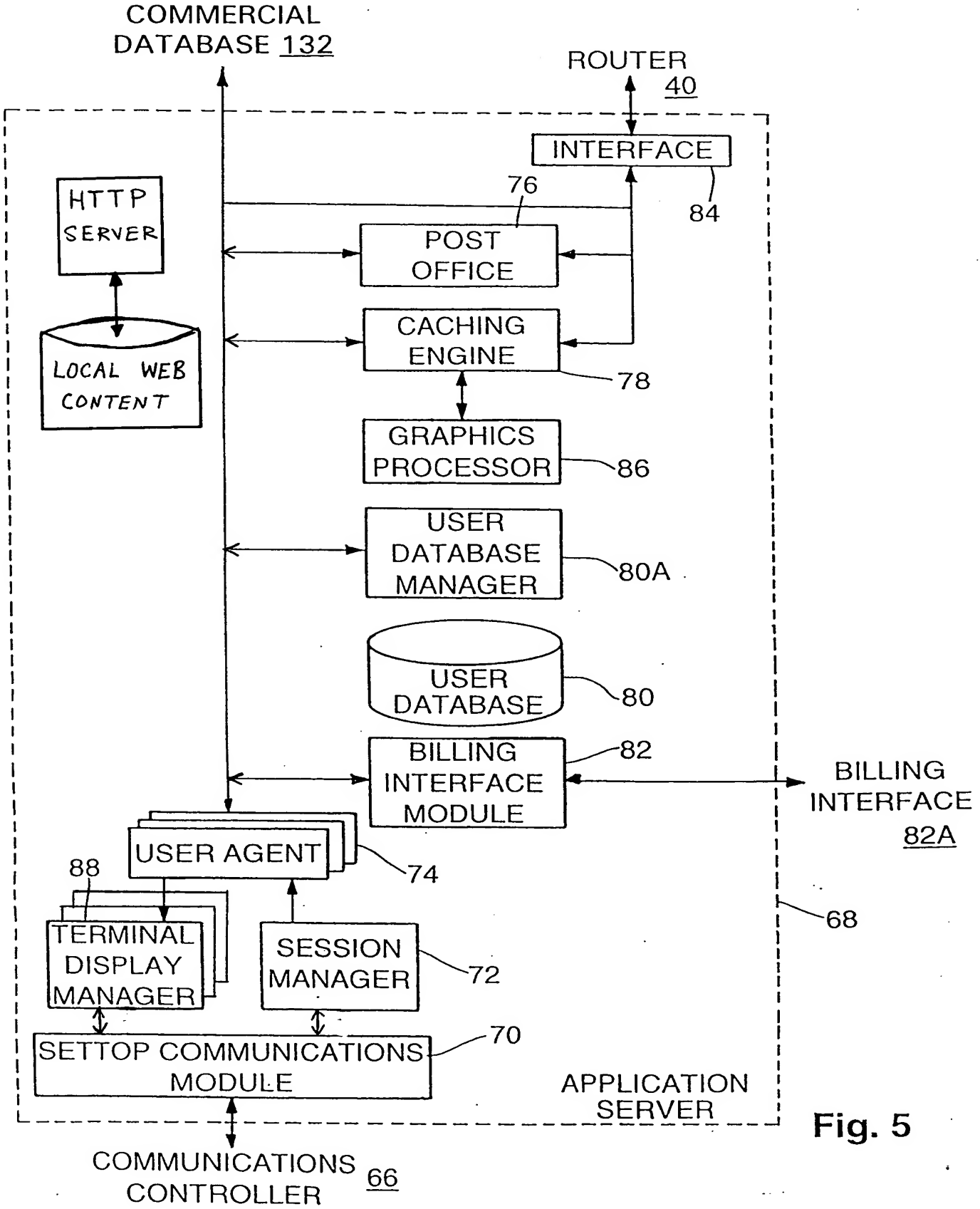

COMMERCIAL DATABASE 132
ROUTER 40
INTERFACE
84
76
HTTP SERVER
POST OFFICE
CACHING ENGINE
78
LOCAL WEB CONTENT
GRAPHICS PROCESSOR
86
USER DATABASE MANAGER
80A
USER DATABASE
80
BILLING INTERFACE MODULE
82
BILLING INTERFACE 82A
USER AGENT
74
88
TERMINAL DISPLAY MANAGER
SESSION MANAGER
72
68
SETTOP COMMUNICATIONS MODULE
70
APPLICATION SERVER
COMMUNICATIONS CONTROLLER 66

Fig. 5

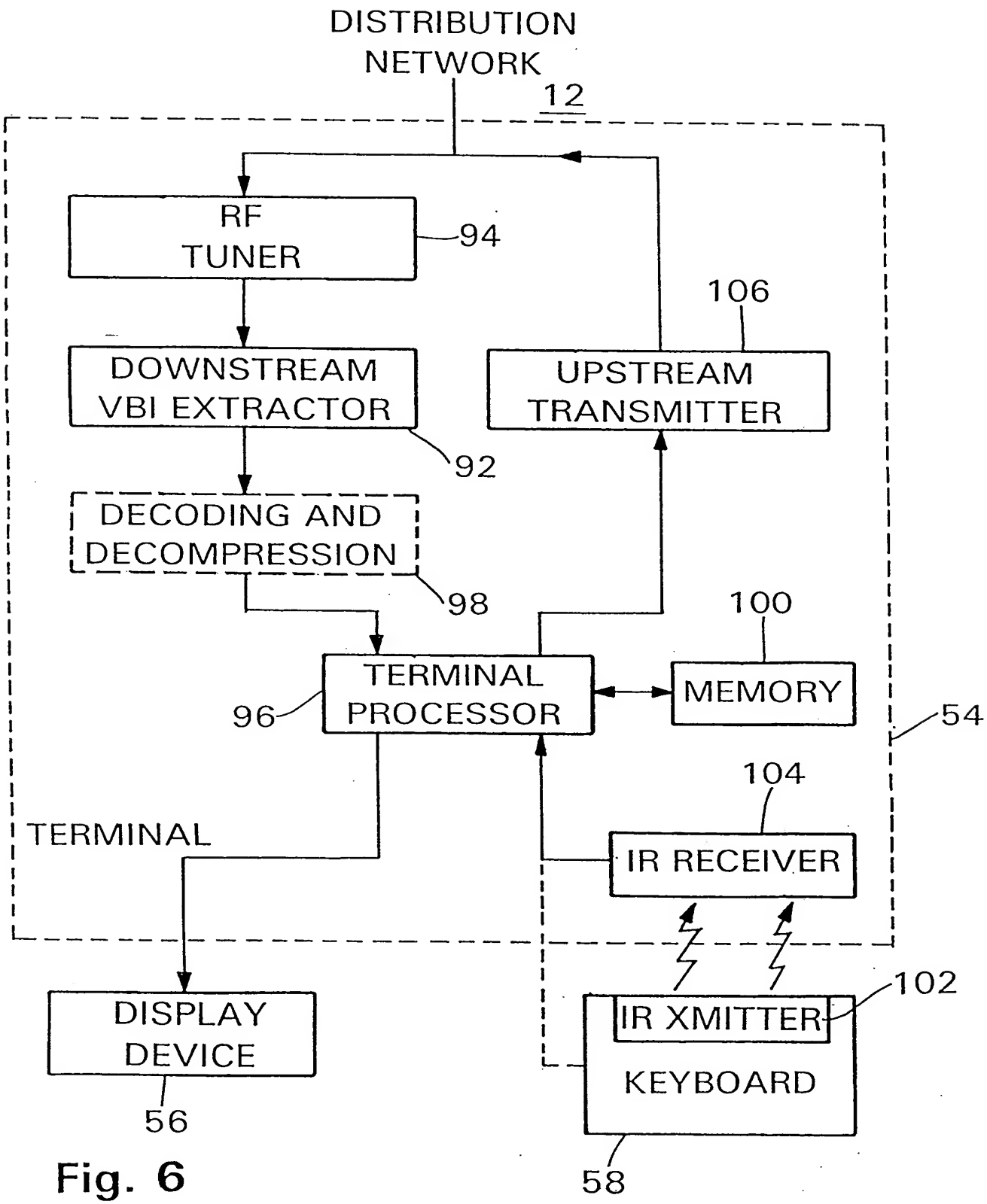

DISTRIBUTION NETWORK
12
RF TUNER
94
106
DOWNSTREAM VBI EXTRACTOR
UPSTREAM TRANSMITTER
92
DECODING AND DECOMPRESSION
98
100
TERMINAL PROCESSOR
96
MEMORY
54
104
TERMINAL
IR RECEIVER
102
DISPLAY DEVICE
IR XMITTER
KEYBOARD
56
58

Fig. 6

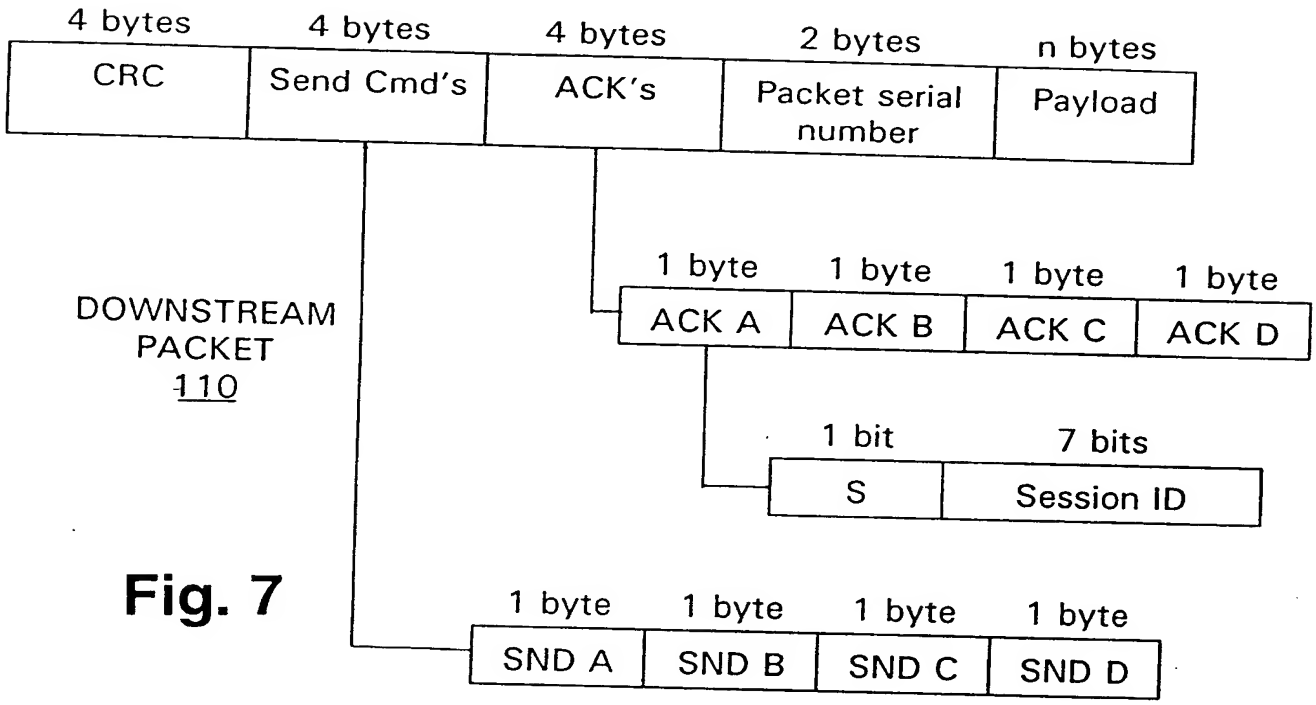


Fig. 7

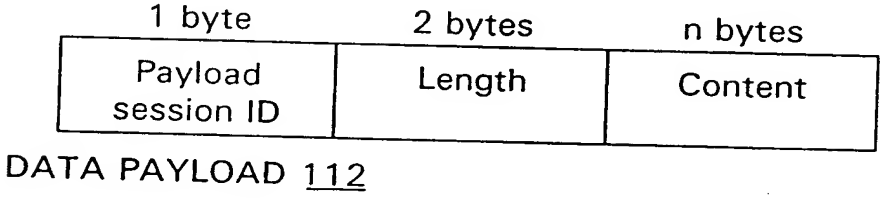


Fig. 8A

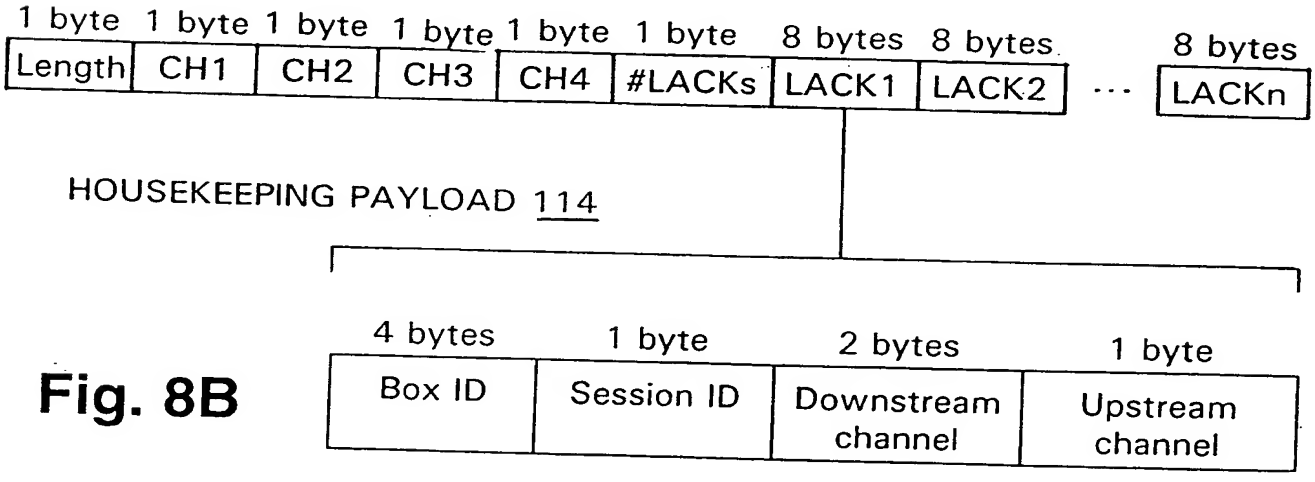


Fig. 8B

Fig. 9

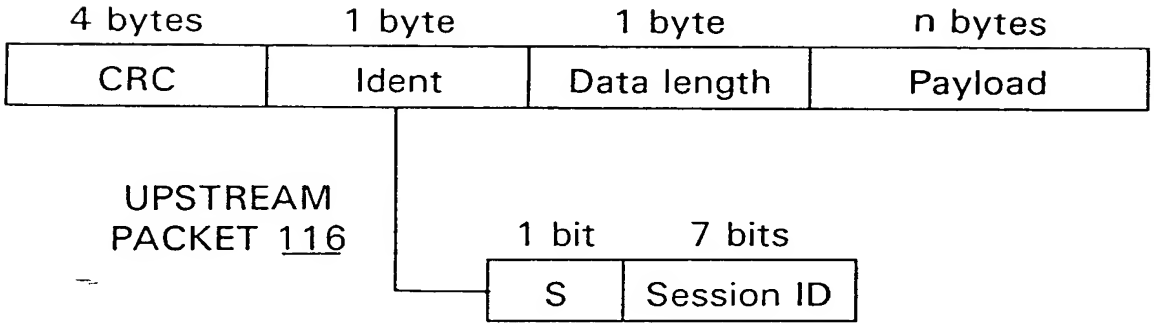
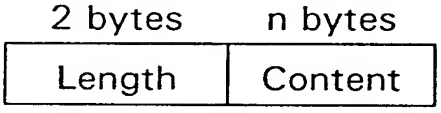
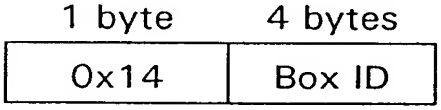


Fig. 10A



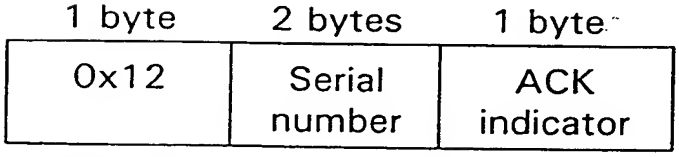
UPSTREAM PAYLOAD STRUCTURE 118

Fig. 10B



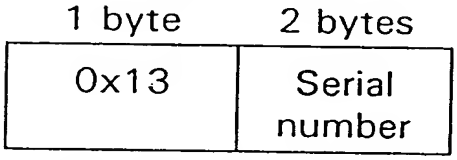
LOGIN REQUEST 120

Fig. 10C



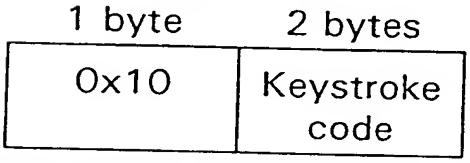
UPSTREAM ACKNOWLEDGE 122

Fig. 10D



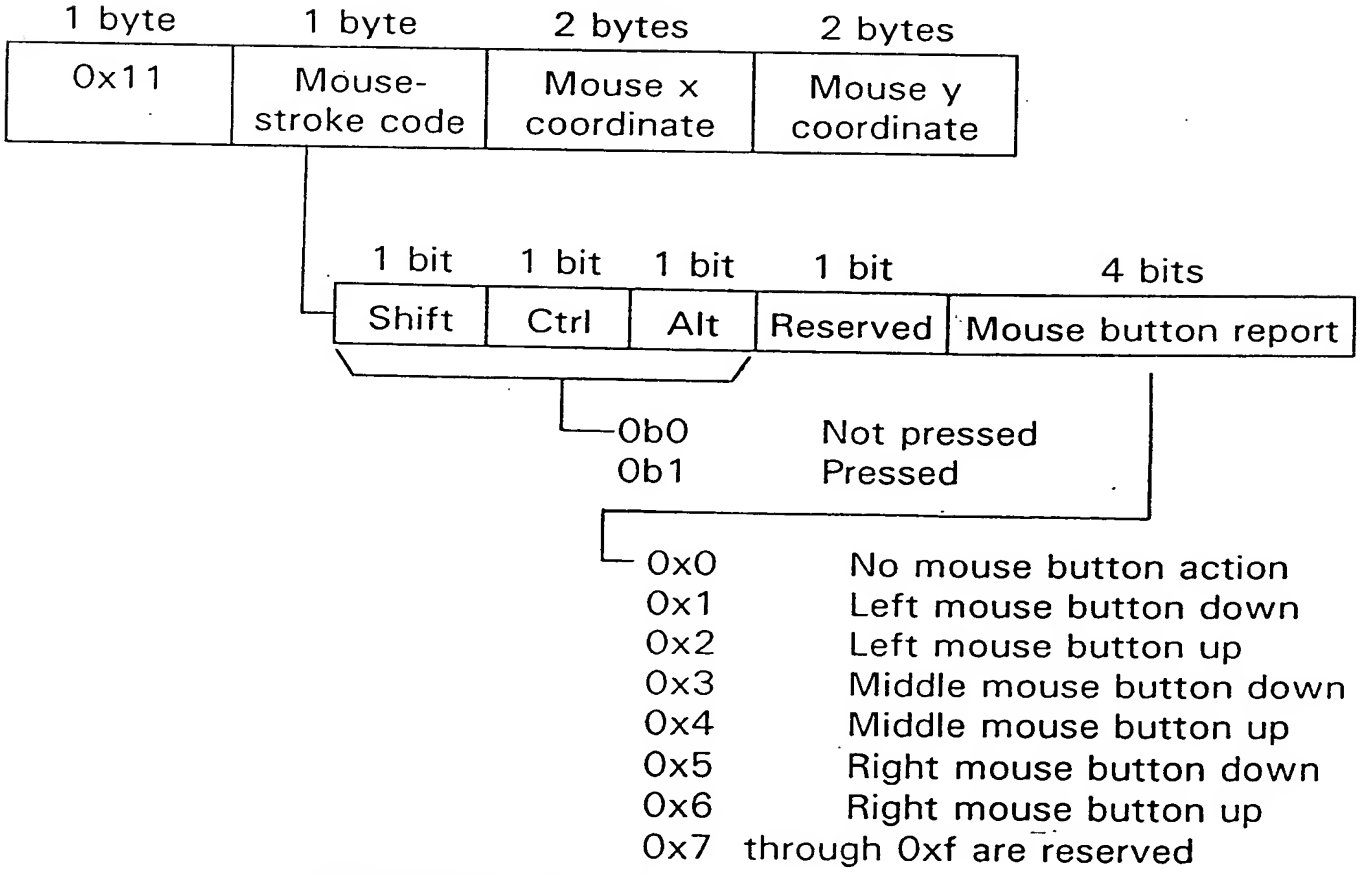
UPSTREAM RE-SEND REQUEST 124

Fig. 10E



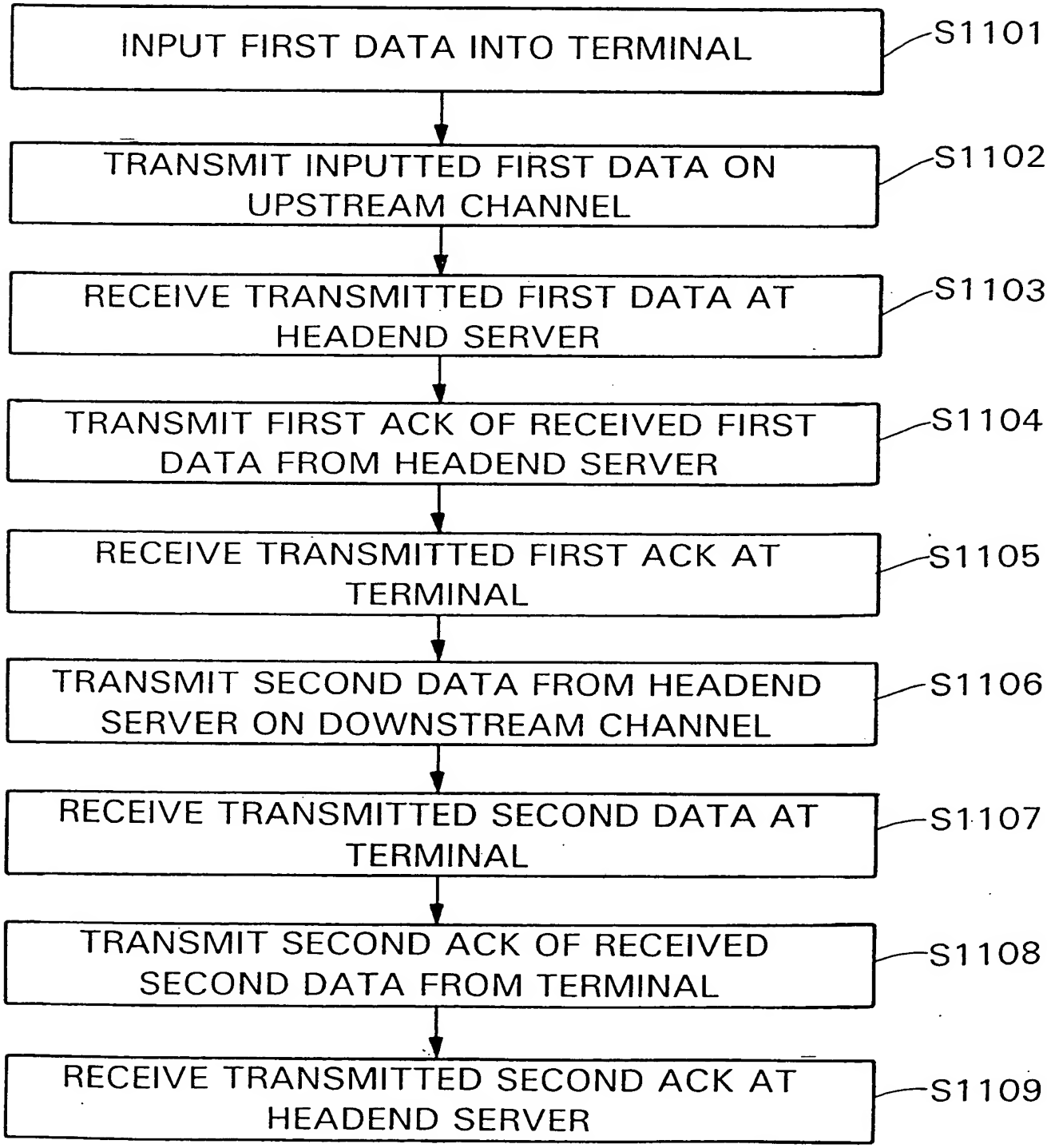
UPSTREAM KEYSTROKE 126

Fig. 10F



UPSTREAM MOUSE MOVEMENT 128

Fig. 11


INPUT FIRST DATA INTO TERMINAL
S1101
TRANSMIT INPUTTED FIRST DATA ON UPSTREAM CHANNEL
S1102
RECEIVE TRANSMITTED FIRST DATA AT HEADEND SERVER
S1103
TRANSMIT FIRST ACK OF RECEIVED FIRST DATA FROM HEADEND SERVER
S1104
RECEIVE TRANSMITTED FIRST ACK AT TERMINAL
S1105
TRANSMIT SECOND DATA FROM HEADEND SERVER ON DOWNSTREAM CHANNEL
S1106
RECEIVE TRANSMITTED SECOND DATA AT TERMINAL
S1107
TRANSMIT SECOND ACK OF RECEIVED SECOND DATA FROM TERMINAL
S1108
RECEIVE TRANSMITTED SECOND ACK AT HEADEND SERVER
S1109